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EXAMINER

JEFFERY, JOHN A

ART UNIT PAPER NUMBER

3742

DATE MAILED: 11/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/827,145

Applicant(s)

ORR ET AL.

Examiner

John A. Jeffery

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-78 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-78 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20040419</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Title of Invention

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Portable Electric Heater With Electric Heating Element Along the Vertical Outlet Opening."

Abstract

The abstract of the disclosure is objected to because of the following informalities: The Abstract is too long and must be shortened to less than 150 words. Correction is required. See MPEP § 608.01(b).

Disclosure Objections

The disclosure is objected to because of the following informalities:

On Page 1, line 2 "now U.S. Pat. 6,760,543" must be inserted after the application serial number to update the status of the parent application.

Appropriate correction is required.

Drawing Objections

The drawings are objected to because of the following informalities:

Fig. 4: An arrowhead must be added to the lead line for numeral 100 to indicate generality.

Fig. 4: A circular double arrowhead must be added adjacent the axis of rotation to clearly indicate rotation.

Fig. 7B: The figure must be labeled "PRIOR ART."

The drawings are also objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore:

- (1) the remote control device claimed in at least claim 13; and
- (2) the base disposed in a package for shipment in claims 40 and 61

must each be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

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of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Joint Inventors -- Common Ownership Presumed

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligations under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103.

Claim Objections

Claims 59-61 are objected to because of the following informalities:

Claim 59: In line 2, the space before the period must be deleted.

Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 103(a)

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 1-8, 11, 12, 14, 20, 29, 38, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595). Alban (US 4,780,595) discloses a portable electric heater comprising elongate vertical housing 16 that is supported on a floor via base 18. See col. 2, lines 55-57. Air blower 38 comprises a motor-driven impeller that directs air drawn into the enclosure through inlet 54 through vertically-disposed outlet openings 10. The air is heated by electric heating elements 42, 44 disposed between the air blower and the outlets. See Fig. 4.

The claims differ from the previously cited prior art in calling for the elevation of the heated exhaust air stream to be 20 inches or greater. Although Alban (US 4,780,595) does not state the exact height of the vertical heated air stream issuing from outlet openings 10, the outlet openings span the substantial length of the vertical enclosure as shown in Figs. 1 and 4. Moreover, as noted in col. 4, lines 8-16, such an outlet length enables the full length of a human subject standing next to the dryer to be exposed to hot air issuing therefrom.

A typical human's height is greater than 20 inches. Thus, Alban (US 4,780,595) implies that the vertical span of outlets 10 should be greater than 20 inches to achieve

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the goals of the reference -- namely, to uniformly dry the entire length of a human subject with heated air. Therefore, it would have been obvious to one of ordinary skill in the art to provide a vertical span of heated air of greater than 20 inches to uniformly dry the entire length of a human subject standing next to the dryer.

Regarding claims 4-6, although Alban (US 4,780,595) does not disclose the exact vertical aspect ratio, comparative ratio, or comparison between elevation and maximum width of the horizontal cross section dimension, such parameters constitute mere engineering design preference well within the realm of routine experimentation by skilled artisans. Moreover, such parameters merely set forth optimum values of heater dimensions well within the scope of routine experimentation by those skilled in the art. It is well settled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955).

Regarding claim 8, note pre-assembled air blower "cartridge" 38 in Fig. 4. Although Alban (US 4,780,595) is silent whether the blower cartridge is pre-tested, pre-testing electrical components prior to installation in devices employing such components, however, is a well-known quality control technique in the art. The feature does not patentably distinguish over Alban (US 4,780,595).

Regarding claim 14, note the dual speed of fan 38 effected by relay 66 as described in col. 3, lines 35-39.

Regarding claim 42, the dryer of Alban (US 4,780,595) may be mounted to a wall. Col. 3, lines 62-63.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Kunz (US 3,725,640). The claim differs from the previously cited prior art in calling for a centrifugal blower. But centrifugal blowers in portable electric space heaters are well known in the art as evidenced by Kunz (US 3,725,640). Kunz (US 3,725,640) discloses in col. 3, line 63 - col. 4, line 24 that the blower establishes centrifugal forces within the housing due to the radial outward and circular airflow movement. Such forces increase the pressure that aids in discharging the air from the housing. In view of Kunz (US 3,725,640), it would have been obvious to one of ordinary skill in the art to provide a centrifugal blower in the previously described apparatus to establish centrifugal forces within the housing due to airflow movement, thus increasing the pressure that aids in discharging the air from the housing.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Bailey (US Des. 468,005). The claim differs from the previously cited prior art in calling for a remote control device. Remotely controlling portable space heaters, however, is well known in the art as evidenced by Bailey (US Des. 468,005) noting the remote control unit in Figs. 1-5. Such a control enables the user to control heater operation at a location distant from the heater. In view of Bailey (US Des. 468,005), it would have been obvious to one of ordinary skill in the art to provide a remote control for the previously described apparatus to enable the user to control heater operation at a location distant from the heater.

Claims 15-18, 21, 22, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Schafer (US 2004/0213559). The claims differ from the previously cited prior art in calling for rotating or oscillating the elongate housing relative to the support surface about an axis parallel to the housing's vertical axis. But oscillating longitudinal housings in a body dryer is well known in the art. Schafer (US 2004/0213559), for example, discloses in Fig. 5 an oscillation means comprising a linkage arm 70 connected to wheel 76. Because the lowermost elongated housing 10 is fixed to the base via post 15, the lowermost housing -- and all other housings removably stacked thereon -- oscillate about the array's vertical axis. Such oscillation sweeps the airflow about a defined angle thus helping the user dry his or her body without excessive movement. See also Fig. 1 and Para. 0027. In view of Schafer (US 2004/0213559), it would have been obvious to one of ordinary skill in the art to oscillate the elongated housing of the previously described apparatus to sweep the airflow about a defined angle thus helping the user dry his or her body without excessive movement.

The claims also differ from the previously cited prior art in calling for a grill covering the outlet opening. But grills are well known in the art as shown by Schafer (US 2004/0213559) noting grills 26-32. See Para. 0023. As is well known in the art, grills protect the user from injury by preventing human contact with heating elements and fan blades, yet enable heat and airflow therethrough. In view of Schafer (US 2004/0213559), it would have been obvious to one of ordinary skill in the art to provide

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protective grills in the previously described apparatus to prevent human contact with heating elements and fan blades within the housing, yet enable heat and airflow therethrough.

The claims also differ from the previously cited prior art in calling for a detachable base. Schafer (US 2004/0213559) in Fig. 3-6 discloses assembling a body dryer tower by detachably coupling a plurality of cylindrical convection heater modules 4, 6, 8 to a base comprising module 10 and plate 14. As noted in Para. 0025, the tower can be made taller or shorter by removing or adding modules. Moreover, regarding claim 40, such modularity is useful for dismantling the apparatus for compact, efficient packaging and shipping. See the last sentence of Para. 0026. In view of Schafer (US 2004/0213559), it would have been obvious to one of ordinary skill in the art to provide the ability to decouple the base from the remainder of the apparatus so that the structure could be dismantled and packaged for shipping when not in use.

Regarding claim 41, because module 10 is removable from base 14 via post 15 and pin 69, the base of Schafer (US 2004/0213559) is a "split base" that can be separated.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Schafer (US 2004/0213559) and further in view of Shih-Chin (US 4,703,152). The claim differs from the previously cited prior art in calling for a controller for controlling a mechanism function for oscillating or rotating. Such controllers, however, are well known in the art as evidenced by Shih-Chin (US

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4,703,152). In col. 5, line 25 - col. 6, line 2, Shih-Chin (US 4,703,152) discloses a portable space heater with a series of control buttons that select either no rotation or the desired angle of oscillation. In view of Shih-Chin (US 4,703,152), it would have been obvious to one of ordinary skill in the art to provide such control means in the previously described apparatus to control the degree of oscillation automatically thereby enabling the user to quickly and easily change the oscillation angle.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Schafer (US 2004/0213559) and further in view of Covault (US 3,575,582). The claim differs from the previously cited prior art in calling for the grill to comprise air-directing vanes. But providing vanes on grills for electric space heaters is well known in the art. Covault (US 3,575,582), for example, discloses grill 24 having vanes 26 thereon. The vanes direct airflow in a certain direction dictated by the vane. In view of Covault (US 3,575,582), it would have been obvious to one of ordinary skill in the art to provide vanes on the grill of the previously described apparatus to direct airflow in a certain direction dictated by the vane thus increasing efficiency.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Schafer (US 2004/0213559) and further in view of Bailey (US Des. 468,005). The claim differs from the previously cited prior art in calling for the grill to be an integral part of the housing. But integral grills on housings for space heaters is well known in the art. Bailey (US Des. 468,005), for example, shows a grill formed

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integral with the housing in Fig. 1. Such a structure not only reduces apparatus parts, it also facilitates forming the grill and housing in a single manufacturing process such as molding or casting. In view of Bailey (US Des. 468,005), it would have been obvious to one of ordinary skill in the art to integrally form the grill and housing in the previously described apparatus to not only reduce apparatus parts, but also form the integral grill and housing in a single manufacturing process such as molding or casting.

Claims 25-28 and 65-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Schafer (US 2004/0213559) and further in view of Jones (US 4,197,447). The claim differs from the previously cited prior art in calling for a distinct air containment frame between the heater and the grill. But such structures are well known in the art as evidenced by Jones. Jones discloses an electric convection space heater comprising an "air containment frame" formed by (1) sheet 42, (2) bottom wall 18 (Fig. 1) or bottom wall 15 (Fig. 2), and (3) side wall 16 that entrains and directs heated air in contact with "air alignment elements" 44 prior to exit. Such a structure confining the air to a predetermined passage maximizes heat transfer to the surrounding air. See col. 1, lines 54-56 and col. 3, lines 36-40. In view of Jones (US 4,197,447), it would have been obvious to one of ordinary skill in the art to provide an air containment frame with air alignment elements in the airflow path of the previously described apparatus to maximizes heat transfer to the surrounding air prior to exit.

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Regarding claims 27 and 28, it is well settled that the recitation that a structure is integral, as contrasted to constituent parts which are rigidly secured together, is merely a matter of obvious engineering design choice. See *In re Fridolph*, 50 CCPA 745, 89 F.2d 509, 135 USPQ 319. See also *In re Lockhart*, 90 USPQ 214 (CCPA 1951), *In re Larson*, 144 USPQ 347, and *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Although the air containment frame and air alignment elements of Jones (US 4,197,447) are separate parts secured together and not integral, merely forming the structure as an integral structure is mere engineering design choice does not patentably distinguish over the secured structure of Jones (US 4,197,447). Moreover, no criticality is seen in the integral formation of the containment frame and air alignment elements in lieu of separate pieces secured together as shown in the prior art.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Goldstein (US RE37,642) and further in view of Yeh (US 5,192,853). The claim differs from the previously cited prior art in calling for the electric heating element to be a 1500-watt PTC heater. But PTC heating elements in portable electric convection space heaters, however, are well known in the art. Goldstein (US RE37,642), for example, discloses PTC electric heating element assemblies 37-1, 37-2 through which air flows prior to exit. See Fig. 5. As noted in col. 1, lines 30-47, PTC heaters are preferable over resistance wire heaters due to PTC heaters' self-limiting temperature characteristics that avoid overheating. Moreover, PTC heaters are more durable than wire-type heaters. *Id.* In view of Goldstein (US RE37,642), it would have

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been obvious to one of ordinary skill in the art to use a PTC heater in lieu of the resistance wire heater of the previously described apparatus to (1) avoid overheating by employing a self-regulating heating element, and (2) utilize a more durable heater, thus prolonging heating element life.

Although Goldstein (US RE37,642) does not disclose the power rating of the PTC heaters, 1500-watt PTC heaters are nevertheless well known in the art. Yeh (US 5,192,853), for example, notes in col. 4, lines 44-49 that prior art PTC heating assemblies typically generate 1500 watts of heat energy. In view of Yeh (US 5,192,853), it would have been obvious to one of ordinary skill in the art to provide a 1500-watt PTC heater in the previously described apparatus to produce sufficient heat from the PTC assembly to sufficiently warm a space to be heated.

Claims 31-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Goldstein (US RE37,642), Yeh (US 5,192,853), and further in view of WO03/009735. The claims differ from the previously cited prior art in calling for the electric heating element to be disposed proximate the outlet and oriented substantially along the longitudinal housing length. Orienting an electric heating element assembly adjacent the outlet and along the vertical length of a body dryer, however, is well known in the art. WO03/009735 discloses a body dryer comprising an elongated vertical housing 11 that contains a long, vertically-oriented electric heating element assembly 31 disposed parallel to vertical outlet slot 29. See abstract and Figs. 2-4 and 18-20. See also Page 19, lines 8-25, Page 26, lines 24-31, and Page 32, line

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25 - Page 33, line 8. By locating a vertical heating element parallel to a vertical outlet, a narrow blade of uniformly heated air is directed at all points along the user's height while the user stands next to the outlet. In view of WO03/009735, it would have been obvious to one of ordinary skill in the art to orient the PTC heaters vertically along the outlet slot of the previously described apparatus to narrow blade of uniformly heated air is directed at all points along the user's height during drying.

Regarding claims 32-34 and 37, although WO03/009735 does not state the dimensions of the elongate electric heating assembly, the assembly nonetheless has a substantial vertical aspect ratio as best seen in Fig. 18. The claims merely recite optimum values within the scope of routine experimentation by those skilled in the art. It is well settled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955). Here, because the general conditions of the claim are met by the prior art, namely a significant vertical aspect ratio for the electric heating assembly, the specific aspect ratio and dimensions claimed are merely optimizations of such values readily discoverable via routine experimentation and do not therefore constitute a patentably distinguishable feature.

Regarding claims 35 and 36, note the row of PTC elements 20 flanked by heat dissipation fins 36 in Fig. 2 of Yeh (US 5,192,853). And, as noted in col. 3, lines 2-5 of Goldstein (US RE37,642), PTC pellets are typically made of ceramic material.

Claims 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Tedioli (US 4,760,243). The claims differ from the previously cited prior art in calling for (1) the mounting means and base to comprise a unitary component, and (2) a bracket. Although the wall mounting details of Alban (US 4,780,595) are not disclosed, wall-mounting a convection space heater that also can be floor-mounted is well known in the art. Tedioli (US 4,760,243), for example discloses a convection heater whose base 4 also functions as a mounting means that fits into bracket 5 mounted on wall M. Compare Figs. 1 and 2. Such an arrangement reduces apparatus parts by duplicating support functions of the base (i.e., for floor support and wall support). In view of Tedioli (US 4,760,243), it would have been obvious to one of ordinary skill in the art to provide a unitary base and mounting means for the previously described apparatus to reduce apparatus parts by duplicating support functions of the base (i.e., for floor support and wall support).

Regarding claim 44, no criticality is seen in forming the mounting feature integrally or as a separate component in view of applicant's statement on Page 22 lines 7-10 of the instant specification that notes that such mounting could either be separate or integral as desired.

Claims 10, 46-49, 54, 57, 58, and 62-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of WO03/009735. The claims differ from the previously cited prior art in calling for the electric heating element to be disposed proximate the outlet and oriented substantially along the longitudinal housing

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length. Orienting an electric heating element assembly adjacent the outlet and along the vertical length of a body dryer, however, is well known in the art. WO03/009735 discloses a body dryer comprising an elongated vertical housing 11 that contains a long, vertically-oriented electric heating element assembly 31 disposed parallel to vertical outlet slot 29. See abstract and Figs. 2-4 and 18-20. See also Page 19, lines 8-25, Page 26, lines 24-31, and Page 32, line 25 - Page 33, line 8. By locating a vertical heating element parallel to a vertical outlet, a narrow blade of uniformly heated air is directed at all points along the user's height while the user stands next to the outlet. In view of WO03/009735, it would have been obvious to one of ordinary skill in the art to orient the electric heaters vertically along the outlet slot of the previously described apparatus to narrow blade of uniformly heated air is directed at all points along the user's height during drying.

Regarding claims 10 and 57, although WO03/009735 does not state the fan length-to-diameter aspect ratio, the recited 2:1 ratio is merely an optimization well within the realm of routine experimentation by skilled artisans. It is well settled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955). Here, because the general conditions of the claim are met by the prior art, namely an elongated fan assembly oriented in the vertical housing, the specific fan aspect ratio is merely an optimization of such a elongated assembly readily discoverable via routine experimentation and does not therefore constitute a patentably distinguishable feature.

Claims 50-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of WO03/009735, Goldstein (US RE37,642) and further in view of Yeh (US 5,192,853). The claim differs from the previously cited prior art in calling for the electric heating element to be a PTC heater. But PTC heating elements in portable electric convection space heaters, however, are well known in the art. Goldstein (US RE37,642), for example, discloses PTC electric heating element assemblies 37-1, 37-2 through which air flows prior to exit. See Fig. 5. As noted in col. 1, lines 30-47, PTC heaters are preferable over resistance wire heaters due to PTC heaters' self-limiting temperature characteristics that avoid overheating. Moreover, PTC heaters are more durable than wire-type heaters. *Id.* In view of Goldstein (US RE37,642), it would have been obvious to one of ordinary skill in the art to use a PTC heater in lieu of the resistance wire heater of the previously described apparatus to (1) avoid overheating by employing a self-regulating heating element, and (2) utilize a more durable heater, thus prolonging heating element life.

Regarding claim 52, note the row of PTC elements 20 flanked by heat dissipation fins 36 in Fig. 2 of Yeh (US 5,192,853). And, as noted in col. 3, lines 2-5 of Goldstein (US RE37,642), PTC pellets are typically made of ceramic material.

Regarding claim 53, although Alban (US 4,780,595) does not disclose the exact vertical aspect ratio, such a parameter constitutes mere engineering design preference well within the realm of routine experimentation by skilled artisans. Moreover, such a parameter merely sets forth optimum values of heater dimensions well within the scope

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of routine experimentation by those skilled in the art. It is well settled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955).

Claims 55, 56, and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of WO03/009735 and further in view of Schafer (US 2004/0213559). The claims differ from the previously cited prior art in calling for a grill covering the outlet opening. But grills are well known in the art as shown by Schafer (US 2004/0213559) noting grills 26-32. See Para. 0023. As is well known in the art, grills protect the user from injury by preventing human contact with heating elements and fan blades, yet enable heat and airflow therethrough. In view of Schafer (US 2004/0213559), it would have been obvious to one of ordinary skill in the art to provide protective grills in the previously described apparatus to prevent human contact with heating elements and fan blades within the housing, yet enable heat and airflow therethrough.

Regarding claim 56, although Alban (US 4,780,595) does not disclose the exact elevation distance, such a parameter constitutes mere engineering design preference well within the realm of routine experimentation by skilled artisans. Moreover, such a parameter merely sets forth optimum values of outlet and grill dimensions well within the scope of routine experimentation by those skilled in the art. It is well settled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to

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discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955).

The claims also differ from the previously cited prior art in calling for a detachable base. Schafer (US 2004/0213559) in Fig. 3-6 discloses assembling a body dryer tower by detachably coupling a plurality of cylindrical convection heater modules 4, 6, 8 to a base comprising module 10 and plate 14. As noted in Para. 0025, the tower can be made taller or shorter by removing or adding modules. Moreover, regarding claim 61, such modularity is useful for dismantling the apparatus for compact, efficient packaging and shipping. See the last sentence of Para. 0026. In view of Schafer (US 2004/0213559), it would have been obvious to one of ordinary skill in the art to provide the ability to decouple the base from the remainder of the apparatus so that the structure could be dismantled and packaged for shipping when not in use.

Regarding claim 60, because module 10 is removable from base 14 via post 15 and pin 69, the base of Schafer (US 2004/0213559) is a "split base" that can be separated.

Claim 72 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Schafer (US 2004/0213559), Jones (US 4,197,447), and further in view of Bailey (US Des. 468,005). The claim differs from the previously cited prior art in calling for the grill to be an integral part of the housing. But integral grills on housings for space heaters is well known in the art. Bailey (US Des. 468,005), for example, shows a grill formed integral with the housing in Fig. 1. Such a structure not

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only reduces apparatus parts, it also facilitates forming the grill and housing in a single manufacturing process such as molding or casting. In view of Bailey (US Des. 468,005), it would have been obvious to one of ordinary skill in the art to integrally form the grill and housing in the previously described apparatus to not only reduce apparatus parts, but also form the integral grill and housing in a single manufacturing process such as molding or casting.

Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Schafer (US 2004/0213559), and further in view of WO03/009735. The claim differs from the previously cited prior art in calling for the electric heating element to have a vertical aspect ratio. Orienting an electric heating element assembly with a vertical aspect ratio adjacent a vertical outlet and along the vertical length of a body dryer, however, is well known in the art. WO03/009735 discloses a body dryer comprising an elongated vertical housing 11 that contains a long, vertically-oriented electric heating element assembly 31 disposed parallel to vertical outlet slot 29. See abstract and Figs. 2-4 and 18-20. See also Page 19, lines 8-25, Page 26, lines 24-31, and Page 32, line 25 - Page 33, line 8. By locating a vertical heating element parallel to a vertical outlet, a narrow blade of uniformly heated air is directed at all points along the user's height while the user stands next to the outlet. In view of WO03/009735, it would have been obvious to one of ordinary skill in the art to provide heaters with a vertical aspect ratio and orient the heaters vertically along the

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outlet slot of the previously described apparatus to narrow blade of uniformly heated air is directed at all points along the user's height during drying.

Claims 74-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alban (US 4,780,595) in view of Schafer (US 2004/0213559), WO03/009735, Goldstein (US RE37,642), and further in view of Yeh (US 5,192,853). The claims differ from the previously cited prior art in calling for the electric heating element to be a PTC heater. But PTC heating elements in portable electric convection space heaters, however, are well known in the art. Goldstein (US RE37,642), for example, discloses PTC electric heating element assemblies 37-1, 37-2 through which air flows prior to exit. See Fig. 5. As noted in col. 1, lines 30-47, PTC heaters are preferable over resistance wire heaters due to PTC heaters' self-limiting temperature characteristics that avoid overheating. Moreover, PTC heaters are more durable than wire-type heaters. *Id.* In view of Goldstein (US RE37,642), it would have been obvious to one of ordinary skill in the art to use a PTC heater in lieu of the resistance wire heater of the previously described apparatus to (1) avoid overheating by employing a self-regulating heating element, and (2) utilize a more durable heater, thus prolonging heating element life.

Regarding claim 78, note the row of PTC elements 20 flanked by heat dissipation fins 36 in Fig. 2 of Yeh (US 5,192,853). And, as noted in col. 3, lines 2-5 of Goldstein (US RE37,642), PTC pellets are typically made of ceramic material.

Regarding claims 75-77, although the prior art does not disclose the exact vertical aspect ratio or heating element dimensions, such parameters constitute mere

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engineering design preference well within the realm of routine experimentation by skilled artisans. Moreover, such a parameter merely sets forth optimum values of heater dimensions well within the scope of routine experimentation by those skilled in the art. It is well settled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955).

Other Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant should (1) separately consider the art, and (2) consider the art together with the previously cited prior art for potential applicability under 35 U.S.C. §§ 102 or 103 when responding to this action. US 577, US 484, JP 418, JP 342, US 067, US 936, US Des. 231, GB 638, US Des. 414, US Des. 589, JP 990, US 912, US 089, US Des. 457, US Des. 950 disclose convection heaters relevant to the instant invention.

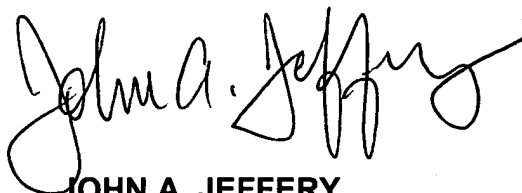
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. Jeffery whose telephone number is (703) 306-4601. The examiner can normally be reached on Monday - Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans, can be reached on (703) 305-5766. All faxes should be sent to the centralized fax number at (703) 872-9306.

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JOHN A. JEFFERY
PRIMARY EXAMINER

11/4/04